small. Further, transmission/ reception of an ultrasonic wave is carried out through an acoustic lens 8 provided on the acoustic matching layer 3b. The electrodes 4 and 5 formed on the both surfaces of the single-crystal vibration element 1 are connected to a cable through FPCs 6 and 7 and thus connected to a diagnosis apparatus (omitted from figures). In the structure shown in FIG. 1D, the FPC 6 is joined to the vibration element by an epoxy-based adhesion throughout the all surface of the vibration element, by extending the conductive layer of the FPC so as to correspond to the area of the vibration element. Metal Cu is generally used as the conductive layer. FIG. 1E shows a conductive layer at a lower portion of the signal FPC shown in FIG. 1D, viewed from the single-crystal vibration element 1. The conductive layer 6a' of the signal FPC shown in FIG. 1D is led like a hound's tooth check as shown in FIG. 1E. This array structure is prepared in the manner explained below. Electrodes 4 and 5 are formed on the single-crystal vibration element 1 having an integral shape. A vibration element to which a FPC is adhered is adhered to the backing member 2. Acoustic matching layers 3a and 3b are formed, and thereafter, a dicing saw is used to cut them from the side of the matching layer. Thereafter, the acoustic lens 8 is formed on the acoustic matching layer 3, and preparation is thus completed.

A1

Cancl

Page 10, please amend the paragraph at lines 9 to 16 as follows:

The probe according to the fifth aspect further comprises: a second electrode formed on an upper surface of each of the piezoelectric members; and a second flexible printed wiring board having a plurality of pattern wires each having a width smaller than a width of each of the piezoelectric member in an array direction, for leading and connecting an electric wire from each of the second electrode to ~~grand~~ ground.

A2

AA 6/10/03

Page 15, please amend the paragraph at lines 14 to 23 as follows:

The backing member 25 is provided on the back surface of the flexible wiring board 23 and mechanically supports the composite piezoelectric member 11. Also, the backing

A3

member 25 breaks the composite piezoelectric member 11 to shorten ultrasonic pulses. The thickness of this backing member 2 is maintained at a sufficient thickness (enough to damp) relative to the wavelength of the ultrasonic frequency to be used, in order to maintain excellent acoustic characteristics of the transducer.

A3 Cont'd

Page 25, please amend the paragraph at lines 10 to 19 as follows:

Kerfs having a depth of 800 μm (100 μm uncut) are cut like an array at a pitch of 200 Um, by a dicing saw with a blade having a thickness of 50 μm, in a piezoelectric member 11 sandwiched between PVC resin layers 3 and 4 containing silver, which are formed in the second step. Epoxy resins 12 are filled and hardened in the cut kerfs. Likewise, similar cut kerfs are formed vertically to the cut kerfs described above, and epoxy resins 12 are also filled and hardened therein.

A4

Page 25, please amend the paragraph at lines 20 to 26 as follows:

Thereafter, the member is temporarily fixed to a glass plate with the uncut side set as a lower surface, and the layer in the opposite side is polished to 150 μm by a plane polisher. Further, the uncut side set as an upper side is also polished to 150 μm. That is, the lower PVC resin layer 113 in the uncut side is divided even after this polishing.

A5

Page 26, please amend the paragraph at lines 10 to 21 as follows:

At first, a common electrode plate 21 is connected to the upper PVC resin layer 113 in the uncut side, and a flexible wiring board 8 provided with a two dimensional signal wiring is connected to the opposite surface throughout the overall surface. A second acoustic matching layer 19 is formed in the side of the ultrasonic wave radiation surface and is thereafter adhered to a backing member 25 by epoxy resins. A silicon-based acoustic lens 19 is adhered thereto. Uniformly in the signal side of the FPC, a voltage of 1 KV/mm is applied between the signal side and the ~~grand~~ ground side.

A6

AR 6/10/03

Page 30, please amend the paragraph at lines 26 to page 31, line 13 as follows:

A predetermined electric power is applied to or detected from the electrodes 40 and 50 through the flexible wiring boards 42 and 44, respectively. The first flexible wiring board 42 is a multi-layer board comprised of a conductive layer 420 made of copper or the like and an insulating layer 421 made of a polyimide film or the like, and serves to make ~~grand~~ ground connection. Also, the second flexible wiring board 44 is a multi-layer board comprised of conductive layers 440 and 442 made of copper or the like, and insulating layers 441, 443, and 445 made of polyimide films or the like, and electrically connects the probe 35 with the body of an ultrasonic diagnosis apparatus. Note that the conductive layer 440 has a predetermined wiring pattern described later (see FIG. 7).

AR 6/10/03

A7

Page 32, please amend the paragraph at lines 10 to 26 as follows:

According to this kind of probe 35, the first and second flexible wiring boards 42 and 44 are set at a pitch width equal to or smaller than that of the array arrangement of the single-crystal piezoelectric members 111. Therefore, in cutting for forming an array arrangement, the conductive layer 440 and the single-crystal piezoelectric member 111 need not be cut simultaneously. That is, since the conductive layer 440 and the single-crystal piezoelectric member 111 which have cutting characteristics different from each other are not cut simultaneously, it is possible to restrict occurrence of cracking and chipping in manufacture of arrays. Also, occurrence of cracking and chipping can be restricted by cutting the single-crystal piezoelectric member 111 with the first flexible wiring boards 42 and the second flexible wiring boards 44 connected.

A8

Page 35, please amend the paragraph at lines 15 to page 36, line 4 as follows:

FIG. 10 is an explanatory view for the schematic structure of an ultrasonic probe 50 according to the seventh embodiment. Note that this figure shows a condition before the first electrode 40 and the second electrode 50 are adhered to the second flexible wiring board 44. In FIG. 10, the first electrode 40 for ~~grand~~ ground is a detour electrode which continues from the

A9

AR 6/6/03